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Journal of Management Studies, 19(6), 701-718.

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Card 7/1

CHIRKOV, B.P.

The Committee on State Prizes for the Council of Ministers USSR in the fields of science and inventions announces that the following scientific works, popular scientific books, and textbooks have been submitted for competition for State Prizes for the years 1952 and 1953. (Sovetskaya Kultura, Moscow, No. 21-40, 20 Feb - 3 Apr 1954)

<u>Name</u>	<u>Title of Work</u>	<u>Nominated by</u>
Gubkin, S.I.	"Deformability of Magnesium	Institute of Metallurgy,
Moguchiy, L.N.	Alloys"	Academy of Sciences USSR
Savitskiy, L.N.		
Zatulovskiy, M.I.		
Mikityuk, V.D.		
Volkov, S.S.		
<u>Chirkov, B.P.</u>		
Imshennik, B.K.		

SO: W-30604, 7 July 1994

PETROV, I.N.; KORSHUNOV, Ye.A.; CHIRKOV, B.S.

Improving the OT-24-51 oscillograph. Izv.tekh. no.11:29-31 N '60.
(MIRA 13:11)

(Oscillograph)

CHIRKOV, B. V.

Subject : USSR/Engineering AID P - 673
Card 1/1 Pub. 29 - 8/24
Author : Chirkov, B. V., Technician
Title : ~~Reconstruction of thrust bearing of a drying drum~~
Periodical : Energetik, 7, 13-14, J1 1954
Abstract : New design of the thrust bearing of a peat-drying drum
with simplified lubrication and replacement of worn parts
is described. 2 drawings.
Institution : None
Submitted : No date

CHIRKOV, B.V.

PETROVSKIY, E.E.; CHIRKOV, B.V.

Meter for briquet production. Torf. prom. 30 no.5:30-31 My '53.
(MLRA 6:5)

1. Orekhovo-Zayevskiy torfobriketnyy zavod. (Briquets (Fuel))
(Counting devices)

CHIRKOV, B.V.

Machine for cutting die canals of briquette presses. Torf.prom. 31
no.4:30 '54. (MLRA 7:6)

1. Orekhovo-Zuyevskiy torfobriketnyy zavod. (Metal working machinery)

CHIRKOV, B.V., inzh.

Mechanization of loading finished products at briquetting
plants. Torf. prom. 38 no.4:25-27 '61. (MIRA 14:9)

1. Orekhovskiy torfbriketnyy zavod Moskovskogo oblastnogo
soveta narodnogo khozyaystva.
(Peat--Transportation)

LAR'KOV, A.; PLYUSHCHEVA, A.; CHIRKOV, D., khudozhnik (poselok Mstera);
BESHENTSEVA, I., khudozhnik (poselok Mstera); RABOTKOVA, I.,
kand.iskusstvovedeniya (g. Ivanovo)

Toward survey exhibitions. Prom.koop. 13 no.3:28-29 Mr '59.

(MIRA 12:4)

1. Predsedatel' pravleniya Ural'skoy kamneresnoy arteli, Ordinskiy
rayon, Permskoy oblasti (for Lar'kov). 2. Starshiy inzhener-tekhnolog
Nauchno-issledovatel'skogo instituta khudozhestvennoy promyshlennos-
ti Rospromsoвета, g. Yelets, Lipetskoy oblasti (for Flyushcheva).
3. Zamestitel' predsedatelya pravleniya arteli "Pobeda," g. Kirov
(for Krupinin).

(Art industries--Exhibitions)

CHIRKOV, D. I.

35401 Povedenie Zhiivotnykh Pri Razlichnykh Rezhimakh Soderzhaniya. Sov. Zootekhnika, 1949, No. 7, S. 68-80.--Bibliogr: 5 NAZV.

SO: Letopis' Zhurnal'nykh Statey Vol. 34, Moskva, 1949

CHIRKOV, D. I.

"Raising Productivity of Swine by Giving Them Frequent Periods in the Open,"
Sov. zootekh., 7, No.9, 1952

CHIRKOV, D. I., Cand of Agric Sci -- (diss) "Frame fencing for swine and its efficacy." Omsk, 1957, 16 pp (Omsk Agricultural Institute im S. M. Kirov), 120 copies (KL, 32-57, 95)

CHIRKOV, D.I.

BARSUKOV, N.I., kand.sel'skokhozyaystvennykh nauk; KIZYURIN, A.D., doktor sel'skokhozyaystvennykh nauk; BORISEVICH, V.A., kand.sel'skokhozyaystvennykh nauk; BORMUSOVA, S.N., agronom; VERMENICHEVA, M.D., kand.sel'skokhozyaystvennykh nauk; GESHELE, E.E., doktor biol. nauk; GOROKHOV, G.I., kand.sel'skokhozyaystvennykh nauk; GUBKIN, S.M., kand. veterinarnykh nauk; YELYKOVA, L.I., kand.sel'skokhozyaystvennykh nauk; KOTT, S.V., doktor biol. nauk; KOCHKINA, V.A., agronom; LAMBIN, A.Z., doktor biol.nauk; LEBNEVA, Ye.M., agronom; MALAKHOVSKIY, A.Ya., doktor sel'skokhozyaystvennykh nauk; MAYBORODA, N.M., kand. sel'skokhozyaystvennykh nauk; MAYDANYUK, A.E., zootekhnik; OVSYANNIKOV, G.Ye., kand.sel'skokhozyaystvennykh nauk; PETROV, F.A., kand.biol.nauk; POGORELOV, P.F., agronom; POLKOSHNIKOV, M.G., dotsent; RENARD, G.K., kand. sel'skokhozyaystvennykh nauk; RUCHKIN, V.N., prof.; SADYRIN, M.M., kand.sel'skokhozyaystvennykh nauk; TOBOL'SKIY, V.YA., vetvrach; TYAZHEL'NIKOV, S.D., kand.sel'skokhozyaystvennykh nauk; UKHIN, I.I., kand.sel'skokhozyaystvennykh nauk; FEDOROV, G.V., kand.sel'skokhozyaystvennykh nauk; CHIRKOV, D.I., zootekhnik; TSINGOVATOV, V.A., prof.; SHVETSOVA, A.N., kand.sel'skokhozyaystvennykh nauk; SHEVLYAGIN, A.I., kand.sel'skokhozyaystvennykh nauk; SEMENOVSKIY, A.A., red.; GOLUBINSKAYA, Ye.S., red.; NECHAYEVA, Ye.G., red.; PERNSYPKINA, Z.D., tekhnicheskij red.

[Siberian agronomist's reference manual] Spravochnaya kniga agronoma Sibiri. Moskva, Gos. izd-vo sel'khoz. lit-ry, Vol.2. 1957. 839 p.
(Siberia--Agriculture) (MIRA 11:3)

USSR/Farm Animals - Swine.

Q-4

Abs Jour : Ref Zhur - Biol., No 13, 1958, 83445

Author : Chirkov, D., Topilina, R.

Inst : -

Title : Pasture Keeping of Swine in West Siberia.

Orig Pub : S. kh. Sibiri, 1957, No 7, 51-56.

Abstract : The article deals with feeding swine with potatoes, sugar beets, lucerne grass, vetch and oat mixtures, and with some other cultures as well.

Card 1/1

CHIRKOV, D.I.

Keeping swine in movable houses with attached runs. Dokl. Akad.
sel'khoz. 22 no.6:30 '57. (MLRA 10:9)

1. Sibirskiy nauchno-issledovatel'skiy institut sel'skogo khozyay-
stva. Predstavlena sanitarno-zoogigiyenicheskoy sektiyei Vsesoyuznoy
ordena Lenina akademii sel'skokhozyaystvennykh nauk imeni V.I. Lenina.
(Swine)

USSR / Farm Animals. Swine.

Q

Abs Jour : Ref Zhur - Biologiya, No 5, 1959, No. 21251

Author : Chirkov, D. I.

Inst : Siberian Scientific Research Institute of Agriculture

Title : Raising Methods, Biologic and Economic Characteristics
of the Omskaya Gray Swine

Orig Pub : Sb. nauchn. rabot. Sibirsk. n.-i. in-t s.-kh., 1958,
No 4, 37-48

Abstract : By crossing Kemerovskaya lard and Sibirskaya spotted
swine breeds with local swine breeds of the northern
rayons of the Omskaya oblast' and in some cases with
sows of the large white breed, the Omskaya gray breed
was raised. Animals of a desirable type were obtained
as a result of mating 2- and 3-breed metis sows of
the first generation with 3-breed boars of the second
generation. Mating among close family members were not

Card 1/3

USSR / Farm Animals. Swine.

Q

Abs Jour : Ref Zhur - Biologiya, No 5, 1959, No. 21251

permitted. Their body's length averages 144 cm, their height at the withers 78 cm, chest circumference measured behind the shoulder blades averages 144.5 cm, in boars chest depth averages 47.5 cm, and it is somewhat smaller in sows. The live weight of sows amounts to 200 - 220 kg of boars-sires to 250 - 280 kg. These pigs differ from the pigs of the large white breed, from the Sibirskaya Northern and the Kemerovskaya lard breed groups by better adaptability to local natural conditions, greater economic expediency in terms of rapid maturation, better utilization of feeds (4.5 - 4.7 feed units per 1 kg of weight gain), better quality of meat and lard. The fertility of the Omskaya gray swine amounts to 10.4 piglets at one farrow. Their piglets are born being full of energy, they have a dense hair cover and their weight averages

Card 2/3

57

USSR / Farm Animals. Swine.

Abs Jour : Ref Zhur - Biologiya, No 5, 1959, No. 21251

Q

1.23 kg. The industrial output of young stock is 8 - 10 percent larger in the breeds mentioned above. At the age of 7 - 8 months lard and meat yields in the gray swine amount to 60 - 61 percent. The Omskaya breed gray swine are well adapted to pasture conditions, they do not suffer from sun burns and graze well in hot and rainy weather. -- A. D. Masin

Card 3/3

CHIRKOV, D.I., kand. sel'skokhozyaystvennykh nauk.

Characteristics of the Omsk gray swine and methods used in producing the breed. Zhivotnovodstvo 20 no.5:10-15 My '58. (MIRA 11:5)

1. Zaveduyushchiy laboratoriyey svinovodstva Sibirskogo nauchno-issledovatel'skogo instituta sel'skogo khozyaystva.
(Omsk Province--Swine breeds)

SIMONENKO, I.A.; CHIRKOV, E.V.

Finds of the cone-in-cone structure in the southern Fergana.
Vop.geol.Uzb. no.2:114-119 '61. (MIRA 15:12)
(Fergana--Petrology)

STAROBINETS, I.S.; PALOMOSHNOV, A.D.; CHIRKOV, E.V.; KARIMOV, A.K.

Concerning the new finds of bituminous rocks in Paleozoic
sediments of Fergana and their nature. Uzb.geol.zhur. 6
no.4:53-59 '62. (MIRA 15:9)

1. Institut geologii i razrabotki neftyanykh i gazovykh
mestorozhdeniy AN UzSSR.
(Fergana---Bitumen---Geology)

CHIRKOV, G.

Experience in using diesel locomotives on the Orenburg railroad. Zhel.dor.transp. 36 no.6:20-24 Je '55. (MIRA 12:4)

1. Nachal'nik planovo-ekonomicheskogo otдела Orenburgskoy dorogi.
(Orenburg Province--Diesel locomotives)

DANCHEV, P.S.; PRYNICHNIKOV, V.A.; BREZGIN, A.S.; CHIRKOV, G.A.

Use of short-delay blasting in the Yestyuninskoye Mine. Trudy
Gor.-geol. inst. UFAN SSSR no.57:29-32 '61. (MIRA 15:3)
(Yestyuninskoye region (Sverdlovsk Province)--Blasting)

KOPYRIN, I.A.; OSTROUKHOV, M.Ya.; BYALYY, L.A.; VOZNESENSKY, V.A.; PLASTININ, B.G.;
Prinimali uchastiye: KUDRYAVTSEV, A.V.; CHIRKOV, G.G.; BRADCHENKO, V.P.

Investigation of gas dynamics in the blast furnace process using
helium. Izv. AN SSSR. Otd. tekhn. nauk. Mat. i topl. no. 5:22-28 S-0 '62.
(MIRA 15:10)

(Blast furnaces)

(Gas dynamics)

CHIRKOV, G.N., inzh.

Device for measuring the height of the back edge of flowshare
blades. Trakt. i sel'khoz mash. no.2:40 F '58.

(MIRA 12:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut
sel'skokhozyaystvennoye mashinostroyeniya.
(Flows)

S/035/62/000/011/053/079
A001/A101

AUTHORS: Kim, L. Kh., Chirkov, G. N.

TITLE: Profiling with a level instrument of the field surface and furrow bottom in testing of plows

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 11, 1962, 15, abstract 11G114 ("Tr. Vses. n.-i. in-ta s.-kh. mashinostr.", 1962, no. 33, 142 - 145)

TEXT: The authors note drawbacks of the method of determining the profile of field surface and furrow bottom by means of wooden rods with levels and pegs. They describe the method of determining the depth of tillage with a hanging plow by means of a level instrument. The use of this method is held to be expedient for testing the performance of multiple hanging plows on a crossed field.

P. K.

[Abstracter's note: Complete translation]

Card 1/1

1. CHIRKOV, I., BARKOV, A.,
2. USSR (600)
4. Petroleum - Transportation
7. Circuit delivery of petroleum products in enterprises. Za ekon. mat. no.2 1953

9. Monthly List of Russian Accessions, Library of Congress, May 1953. Unclassified.

CHIRKOV, I.		PROCESSING AND PROPERTIES INDEX	
S		7	
EXPERIENCE GAINED FROM THE USE, DURING FIVE CAMPAIGNS, OF A 1200-TON MIXER. I. Chirkov. (Stal, 1959, No. 6, pp. 8-13). (In Russian). The thirteen 200-350-ton open-hearth furnaces of the kuznetskiy works are served by a 1200-ton-capacity "Bamag" mixer. This has now been in use for almost five years with a throughput of about four million tons of pig-iron. Constructional details are described and the working of the mixer during this time is dealt with. It has been found that effective mixing depends mainly on the volume of iron in the mixer and the time for which it remains in it. Improvements in construction which would prolong the life of the refractory lining, and consequently increase the output capacity per campaign, are suggested.			
ASB-ILA METALLURGICAL LITERATURE CLASSIFICATION			
FROM SYNDICATE		FROM SYNDICATE	
SECONDARY ONLY ONE		SECONDARY ONLY ONE	
TITANIDE		TITANIDE	
ALUMINIDE		ALUMINIDE	
SILICIDE		SILICIDE	
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FLUORIDE		FLUORIDE	
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IODIDE		IODIDE	
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L			

CHIRKOV, I.

Blast furnace operator of the seven-year plan. Metallurg
7 no.7:37-38 JI '62. (MIRA 15:7)
(Mamontov, Vasilii Petrovich)

KHUDOYAN, T.S.; SHAROV, A.; CHIRKOV, I. (Stalinsk, Kemerovskaya oblast');
KHAUSTOV, S. (g.Novoshakhtinsk); ARKHIPOV, V., avtomatchik;
SHEVCHENKO, B.; GETMANSKAYA, Ye.; SUMTSOV, I.; KURDYUKOVA, L.,
doyarka; BABIY, V. (Chernovitskaya oblast'); MAKAROV, N.;
SOKOLOV, K.; SINITSKIY, N.

Letters to the editor. Sov. profsoyuzy 17 no. 5:35-39 Mr '61.
(MIRA 14:2)

1. Zaveduyushchiy otделom truda i zarplaty respublikanskogo
soyprofa Armenii (for Khudoyan). 2. Staleprokatnyy zavod,
Leningrad (for Arkhipov). 3. Predsedatel' pravleniya kluba
sovkhoza "Krasnyy Oktyabr'," Voronezhskoy oblasti (for Shevchenko).
4. Chleny pravleniya kluba sovkhoza "Krasnyy Oktyabr'," Voronezh-
skoy oblasti (for Getmanskaya, Sumtsov). 5. Sovkhoz "Krasnyy
Oktyabr'," Voronezhskoy oblasti (for Kurdyukova). 6. Predsedatel'
tsekhkoma kotel'no-svarochnogo tseka Vol'skogo zavoda "Metallist"
(for Makarov). 7. Predsedatel' postroykoma Stroitel'nogo uchastka
No. 2, g.Gagra, Gruzinskaya SSR (for Sinitskiy).
(Trade unions) (State farms)

BORODYUK, V.P.; CHIRKOV, I.M.

Attainment of mathematical descriptions by the methods of active
and passive experiments. Trudy MEI no.51:49-114 '63.
(MIRA 17:9)

CHIRKOV, I. S.

1. ENIKEEV, S. G., CHIRKOV, I. S.
2. USSR (600)
4. Growth (Plants)
7. On N. N. Ovchinnikov's article "Theory of cyclical aging and rejuvenescence of plants," Sel. i sem, 20 No. 2, 1953

9. Monthly List of Russian Accessions, Library of Congress, May 1953, Uncl.

PHASE I BOOK EXPLOITATION

809/5017

Kaplan, G. Ye., T. A. Uspenskaya, Yu. I. Zarembo, and I. V. Chirkov

Toriy, yego syr'yevyye resursy, khimiya i tekhnologiya. (Thorium, Its Raw Material Resources, Chemistry and Technology) Moscow, Atomizdat, 1960. 223 p. Errata slip inserted. 4,000 copies printed.

Ed.: Ye. I. Panasenkov; Tech. Ed.: N. A. Vlasova.

PURPOSE: This book is intended for chemists, physicists, and researchers in the field of atomic energy.

COVERAGE: This is a review of Soviet and other literature on thorium published in the past 15-20 years. The material contains data on the main characteristics of thorium geochemistry and mineralogy and on the current raw material base of thorium outside the Soviet Union. It covers the physicochemical, corrosion-resisting, and radioactive properties of thorium, including its fields of application. The production technology for commercial and technically pure thorium is described along with its basic compounds and alloys. Brief information on the analytical chemistry of thorium is also included. The problems concerning the fuel cycle

Card 1/5

Thorium, Its Raw Material Resources (Cont.)

SOV/5017

schemes for U^{233} , the properties of irradiated thorium, and its processing technology will be dealt with in another book. Ch. II. was written by I. V. Chirkov, and the other chapters by G. Ye. Kaplan, Yu. I. Zarembo, and T. A. Uspenskaya. References accompany each chapter.

TABLE OF CONTENTS:

Foreword	2
Ch. I. Fields of Application and Rates of Production of Thorium	3
Bibliography	7
Ch. II. Mineral Raw Material Resources of Thorium	9
Basic characteristics of the geochemistry and mineralogy of thorium	9
Types of thorium deposits	9
Recent state of the raw material base of thorium outside the Soviet Union; industrial importance of deposits of different genetic types	44
Bibliography	55

Card-2/5

CHIRKOV, I.V.; KAPLAN, G.Ye; USPENSKAYA, T.A.; NEVSKIY, V.A.,
nauchnyy red. MATIS, T.I., red. izd-va; BORISOV, A.S.,
tekhn. red.

[Industry's requirements as to the quality of mineral raw materials; handbook for geologists] Trebovaniia promyshlennosti k kachestvu mineral'nogo syr'ia; spravochnik dlia geologov. Izd.2., perer. Moskva, Gosgeoltekhizdat. No.72. [Thorium] Torii. Nauch. red. V.A.Nevskii. 1961. 82 p. (MIRA 15:6)

1. Russia (1923- U.S.S.R.) Ministerstvo geologii i okhrany nedr. (Thorium)

SURAZHSKIY, D.Ya.; KAPLAN, G.Ye.; NEVSKIY, V.N.; CHIRKOV, I.V.

"Studies of rare earths from the point of view of economic
geology" by B.I. Kogan. Reviewed by D.IA. Surazhakii and others.
Geol.rud.mestorozh. no.5:103-104 3-0 '62. (MIRA 15:12)
(Rare earths) (Kogan, B.I.)

CHIRKOV, K.

USSR/Radio - Wired Radio Centers

Dec 51

"A New Wired Radio Center," K. Chirkov, Section
Mechanic of the Novo-Shcherbinovskaya Wired Radio
Center

"Radio" No 12, p 11

A new inter-kolkhoz wired center has been built and
put in operation in Novo-Shcherbinovskaya. The
center was built by the Construction-Assembly Office
of the Admn of Communications and belongs to 2 farm
trusts (imeni M. I. Kalinin and G. Dimitrov), which
unite 8 small kolkhozes. The center is equipped with
PTS-47 receivers and a TU-500-3 amplifier, has 55 km
of line running from it, and serves 669 homes.

208T60

USSR / Farm Animals. Swine.

Q-4

Abs Jour : Ref Zhur - Biol., No 14, 1958, No 64514

Author : Chirkov, L. I.

Inst : All-Union ordena Lenin Academy of Agricultural Sciences
imeni V. I. Lenin.

Title : Stall-Pasture Management of Pigs

Orig Pub : Dokl. VASKhNIL, 1957, No. 6, 30-36.

Abstract : No abstract.

Card 1/1

44

ACC NR: AP7005621

SOURCE CODE: UR/0413/67/000/002/0066/0066

INVENTOR: Kravtsov, N. V.; Chirkov, L. Ye.

ORG: none

TITLE: Electrooptical element. Class 21, No. 190488

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 2, 1967, 66

TOPIC TAGS: phase modulation, optic modulator, optic element, *ELECTROOPTIC EFFECT*

ABSTRACT: An electrooptical element for a phase modulator is introduced (see Fig. 1) which is based on the quadratic electrooptic effect. To reduce the amplitude of the modulating voltage, the modulator capacitance, and the required power, it is made in the form of a rectangular prism. This form assures complete multiple reflection of the light beam within the element. Orig. art. has: 1 figure. [JR]

Card 1/2

UDC: 621.383.6:621.376.4.08

ACC NR: AP7005621

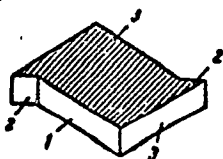
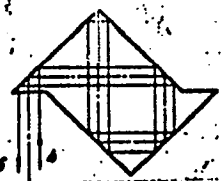
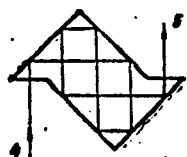


Fig. 1. Electrooptical element

1 - Single crystal cut; 2 - incoming window; 3 - electrodes;
4 - incoming beam; 5 - outgoing beam.



SUB CODE: 09/ SUBM DATE: 07Sep65/

Card 2/2

LUK'YANOV, N.V.; CHIRKOV, M.A.

Reconstruction of apartment houses. Nov. tekhn. zhil.-kom. khoz.:
Zhil. khoz. no.2:17-22 '63. (MIRA 18:6)

SHAUMAN, A.M.; CHIRKOV, M.K.

Keyboard-type table computer. Vych. tekhn. i vop. prog. no.1:3-10
'62. (MIRA 16:6)

(Electronic computers)

CHIRKOV, M.K.; BEREZNAYA, I.Ya.; SHARTUKOV, A.P.

Problems of data input-output in a keyboard-type table computer.
Vych. tekhn. i vop. prog. no.1:48-57 '62. (MIRA 16:6)
(Electronic computers)

67542

9.3260

AUTHORS: Chirkov, M.K. and Zanadvorov, P.N. SOV/141-2-3-19/26

TITLE: The Influence of a Large Amplitude Radio Pulse on a Self-oscillator

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1959, Vol 2, Nr 3, pp 473 - 482 (USSR)

ABSTRACT: The transient conditions in a driven oscillator are studied, using the terminology of periodic phasing and the mathematical apparatus of finite-difference equations. The analytical relations obtained agree well with the results of numerical solution of the differential equations. The oscillator is a tuned-anode circuit with various bias arrangements. The valve characteristics are approximated by linear segments. If the frequency of the external signal is constant and the circuit parameters are fixed, the instantaneous amplitude and phase at the beginning of each successive period of excitation are given by Eq (1). If the oscillation was originally a damped sine wave, the amplitude and phase after one period of excitation are given by Eq (2). The angle over which anode current is cut off (referred to the grid) is given

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67542

The Influence of a Large Amplitude Radio Pulse on a Self-oscillator ^{SOV/141-2-3-19/26}

by θ_1 in Eq (4) for fixed bias and in Eq (5) for "inertialess" auto-bias. The system of equations used in the rest of the paper (Eq 6) is a re-statement of Eq (2). For the synchronous case an even more compact form in new variables is Eq (9). The constant C is evaluated for fixed bias and variable bias with θ_0 greater and less than 90° (θ_0 is the cut-off angle in the free-running condition). The solution to Eq (9) is Eq (10), represented in Figure 1 as a phase-frequency plot for various pulse durations. When the initial phase has a random character, the statistics of phase distribution after excitation are those in Figure 1b. Figure 2 shows the duration of pulse necessary to effect a given mean phase deviation. Figure 3 shows the "settling time" for phase of a synchronized oscillator with self-bias. When there is slight detuning, Figure 1 is replaced by Figure 4. The phase change with increase in pulse duration now has an oscillating character and the distribution

Card2/3

67542

SOV/141-2-3-19/26
The Influence of a Large Amplitude Radio Pulse on a Self-oscillator
function in Figure 4b is now asymmetrical.
There are 4 figures and 4 Soviet references.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet
(Leningrad State University)

SUBMITTED: December 12, 1958

Card 3/3

CHIRKOV, M.K.

Reliability of logical switching circuits. Vych. tekhn. i von.
prog. no. 2: 14-20.

Fulfilling operations using a keyboard table computer.
Ibid.: 54-61

About some switching circuits. Ibid.: 89-96 (MIRA 17:8)

1. Otvetstvennyy redaktor zhurnala "Vychislitel'naya tekhnika
i voprosy programmirovaniya".

CHIRKOV, M.K.

Elements of control devices. Vych. tekhn. i vop. prog. no.1:23-38
'62. (MIRA 16:6)

(Electronic computers)

CHIRKOV, M.K.

Reliability of single-cycle circuits composed of elements with
"Symmetrical" errors. Vest. LGU 18 no.13:134-137 '63.

(MIRA 16:9)

(Logic, Symbolic and mathematical)

SHAUMAN, A.M.; BEREZNAYA, I.Ya.; PUDKOV, G.Ya.; CHIRKOV, M.K.

Display systems using digital glow-discharge tubes. Vych.
tekhn. i vop. prog. no.2:79-88 '63. (MIRA 17:8)

ACCESSION NR: AT4008631

8/3040/63/000/002/0016/0038

AUTHOR: Chirkov, M. K.

TITLE: Reliability of logic switching circuits

SOURCE: Leningrad. Universitet. Kafedra by*chislitel'noy matematiki i vy*chislitel'ny*y tsentr. Vy*chislitel'naya tekhnika i voprosy* programirovaniya, no. 2, 1963, 16-38

TOPIC TAGS: logic switching circuit, combinational switching circuit, logic equation system, correct operation probability, element with symmetrical errors, switching circuit reliability, computer reliability, automatic device reliability, automatic control system

ABSTRACT: Mathematical expressions are derived for the probability of correct operation of primitive non-delay switching circuits such as single-throw relay systems. The expressions obtained take account of the probability of correct operation of the individual elements,

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ACCESSION NR: AT4008631

the structure of the circuit, and the character of the input signal. The complexity of the expressions depends greatly on the number of elements in the circuit. If the probability of correct operation of the individual element is independent of the time, the results can be extended to include finite automata without memory. The methods developed can be used also for synthesis of switching networks with specified probability of correct operations. Methods of improving the probability are also discussed. Orig. art. has: 6 figures, 49 formulas, and 3 tables.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: 31May62

DATE ACQ: 23Jan64

ENCL: 00

SUB CODE: MM

NO REF SOV: 004

OTHER: 004

Cord 2/2

CHIRKOV, M.K.

Functional reliability of discrete automata. Vych. tekhn. 1
vop. prog. no.3:16-30 '64.

Probability type finite automata. Ibid.:44-57

(MIRA 18:3)

[22977-65 EWT(d) IJP(c)

ACCESSION NR: A75001653

S/3407/2 02.10.1964

AUTHOR: Chirkov, M. K.

TITLE: On stochastic finite automata

SOURCE: Leningrad. Universitet. Kafedra vychislitel'noy matematiki i vychislitel'noy tsentr. Vychislitel'naya tekhnika i voprosy programirovaniya, 1964, 44-57

TOPIC TAGS: automaton, deterministic automaton, stochastic automaton, computer analysis, computer synthesis

ABSTRACT: The author analyzes the operation of an abstract stochastic finite automaton, introduces several estimates of its operation as compared with some deterministic finite automaton, and formulates the problems involved in the analysis and synthesis of its binary realizations. The deterministic finite automaton is defined as a system of mappings of a set of A states into themselves; the system is defined on the set of input X such that to each state A_i of the automaton and to each input X_j there is set in unique correspondence f_{ij} .

Cord 2/2

L 22879-65

ACCESSION NR: AT5001653

into which the automaton goes over. In the stochastic finite automaton, the finite set of states A and the finite set of inputs X is such that the system goes over under the influence of the input X_S ($S = 0, 1, \dots, n-1$) from any state A_i into any state A_j with a certain probability P_{ij} . The analysis of stochastic automata and of their reliability is discussed. The analysis method can be used to solve synthesis problems. One figure and 41 formulas.

ASSOCIATION: Leningradskiy universitet (Leningrad University)

SUBMITTED: 12Nov63

ENCL: 00

SUB CODE: DF

NR RE' NOV: 006

OTHER: 006

Word 2/1

CHIRKOV, M. M.

"Comparison Tests of High-Speed Windmill PD-5 and Low-Speed Windmill TV-5,"
Sel'khoz mashina, No.7, 1952

1 30400-66 20/1/1965/13 10P(c) 00/13-00/00

ACC NR: AT6002982

SOURCE CODE: UR/0000/65/000/000/0130/0141

AUTHOR: Chirkov, M. P.

ORG: none

TITLE: Widening the dynamic stability range of logical circuits constructed with ELM(b) magnetic elements

SOURCE: Vsesoyuznoye soveshchaniye po magnitnym elementam avtomatiki i vychislitel'noy tekhniki. 9th, Yerevan, 1963. Magnitnyye tsifrovyye elementy (Magnetic digital elements); doklady soveshchaniya. Moscow, Izd-vo Nauka, 1965, 130-141

TOPIC TAGS: magnetic element, logical circuit, dynamic stability

ABSTRACT: ELM(b) magnetic elements manufactured by the Kalinin Electric Equipment Plant reliably operate from a single pulse only within their nominal $\pm 3\%$ voltage, which is inadequate for many practical applications (e.g., pulse circulation in a ring circuit). The dynamic stability of any logical circuit consisting of ELM(b) elements depends on the stability of dynamic input-output characteristics of the

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ACC NR: AT6002982

repeater and inverter of that circuit under specified supply-voltage variation conditions. Accordingly, three possible circuits are theoretically analyzed: (1) Ring circuit containing only repeaters; (2) Ring circuit containing only inverters; (3) Circuits containing both repeaters and inverters. Recommendations are given for selecting the parameters of repeaters and inverters which would ensure dynamic stability of the logical circuit within a specified supply-voltage range. It is claimed that stable operation of logical circuits with as high a voltage variation as $+10 -15\%$ was attained by the author. A formula for minimum tolerable duration of the control signal is offered. Orig. art. has: 11 figures and 16 formulas.

SUB CODE: 13, 09 / SUBM DATE: 23Apr65 / ORIG REF: 002

Card 2/2/MLP

CHIRKOV, N.A.; BUDNIKOV, I.D.; MEDVEDEV, A.P.; RISPEL', K.N.

Production of 5KhNV steel with the use of silicothermic and
complex tungsten-containing briquets. Stal' 25 no.3:228-
230 Mr '65. (MIRA 18:4)

1. Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii
i Chelyabinskiy stankostroitel'nyy zavod.

8(5)
AUTHORS: Toloknov, O.A., Chirkov, M.T., and Yerokhin, I.A. SOV/159-58-3-9/31
TITLE: A Generator - Motor System With Magnetic Amplifiers
PERIODICAL: Nauchnyye doklady vysshey shkoly, Mashinostroyeniye i priborostroyeniye, 1958, Nr 3, pp 58-61 (USSR)
ABSTRACT: For a number of production devices it is desireable to have an electric drive with an even wide control range. The generator-motor system satisfies this requirement. However, the normal generator-motor system does not provide different mechanical characteristics. This may be obtained by a complicated and uneconomical addition of auxiliary motors and devices. The generator-motor system suggested by the authors provides a wide and even range of rpm control for different mechanical characteristics. Prior to considering the generator - motor system with a magnetic amplifier, the authors point out some peculiarities of generator-motor systems with series excitation. They mention the complicated equipment required and that continuous motor speed control is of the

Card 1/3

SOV/159-58-3-9/31

A Generator - Motor System With Magnetic Amplifiers

order 1:10 by reducing the magnetic current in the motor and in the generator. Further, they point out the disadvantages of such a system. For eliminating these disadvantages and for providing a control range of 1:50, the authors suggest a generator-motor system with a magnetic amplifier as shown in figure 2. In a generator-motor system, having series excitation, residual magnetism currents are of great influence at loads close to zero. These residual magnetism currents are compensated in the system suggested by the authors. The suggested generator-motor system with a magnetic amplifier was tested on a low-power machine PI-45, operating at 110 volts, 28.2 amps, 2.5 kw, 1,000 rpm. The application of magnetic amplifiers provides the possibility obtaining different mechanical characteristics and regulating the motor speed by means of potentiometers. There are

Card 2/3

A Generator - Motor System With Magnetic Amplifiers

SOV/159-58-3-9/31

1 circuit diagram, 5 graphs and 4 Soviet references.
This article was presented by the
Kafedra "Elektrotehnika i elektrooborudovaniye"
Moskovskogo vysshego tekhnicheskogo uchilishcha imeni
Baumana (Chair "Electrical Engineering and Electrical
Equipment" of the Moscow Higher Technical School imeni
Baumana);

SUBMITTED: March 13, 1958

Card 3/3

MARKOV, V.Ye., inzh.; REKUS, G.G., inzh.; CHIRKOV, M.T., inzh.; BOGOLEPOV,
K.G., inzh.; NEYMAN, B.S., inzh.

EPL-6 electric pump with immersed electric engine. Mekh. i elek.
sots. sel'khoz. 17 no.2:45-46 '59. (MIRA 12:6)

1.Moskovskoye vyssheye tekhnicheskoye uchilishche im. Baumana (for
Markov, Rekus, Chirkov). 2.Moskovskiy elektromekhanicheskiy zavod
Ministerstva sel'skogo khozyaystva RSFSR (for Bogolepov, Neyman).
(Pumping machinery)

MARKOV, V.Ye., inzh.; REKUS, G.G., inzh.; CHIRKOV, M.T., inzh.; BOGOLEPOV,
K.G., inzh.; NEYMAN, B.S.

Electric pulley block with planetary gear. Mekh.i sots.sel'khoz.
17 no.7:50-51 '59. (MIRA 13:4)

1. Moskovskoye vyssheye tekhnicheskoye uchilishche im. Baumana
(for Markov, Rekus, Chirkov) 2. Elektromekhanicheskiy zavod
Moskovskogo sovnarkhoza (for Bogolepov, Neyman).
(Pulleys)

CHELNOKOV, N.M., kand.tekhn.nauk; Principal participants: RAZORENOVA, N.I.;
CHIRKOV, M.T.

Welding in the manufacture of ignition coils. Svar.proizv. no.1:
32 Ja '62. (MIRA 15:3)

1. Moskovskoye vyssheye tekhnicheskoye uchilishche im. Baumana (for
Chelnokov, Chirkov). 2. Zavod avtotraktornogo elektrooborudovaniya
No.2 (for Razorenova).
(Electric coils—Welding)

TOLOKNOV, O.A., kand.tekhn.nauk; NITUSOV, Yu.Ye., kand.tekhn.nauk; REKUS,
G.G., kand.tekhn.nauk; CHIRKOV, M.T., inzh.

An a.c.drive system for driving wheels of an automobile train.
Izv.vys.ucheb.zav.; mashinostr. no.7:133-136 '63. (MIRA 16:11)

1. Moskovskoye vyssheye tekhnicheskoye uchilishche imeni Baumana.

TOLOKNOV, O.A., kand. tekhn. nauk; REKUS, G.G., kand. tekhn. nauk;
CHIRKOV, M.T., inzh.

Gas-turbine a.c. traction drive system. Elektrotehnika 34
no.11:44-49 N '63. (MIRA 17:2)

REKUS, G.G., kand. tekhn. nauk; CHIRKOV, M.T., inzh.

Effect of harmonics on the torque curve of an asynchronous
motor. Izv. vys. ucheb. zav.; energ. 7 no.11:31-38 N '64
(MIRA 18:1)

1. Vyssheye tekhnicheskoye uchilishche imeni Baumana. Pred-
stavlena kafedroy elektrotekhniki i elektrooborudovaniya.

REKUS, G.G., kand. tekhn. nauk (Moskva); CHIRKOV, M.T., inzh. (Moskva)

Speed control ranges of an induction motor with frequency
regulation. Elektrichestvo no.5:77-81 My '64. (MIRA 17:6)

L 21970-01 12-11-64 12-11-64 12-11-64

ACCESSION NR: APPROX 2504

S/0144/64/000/011/03/000

AUTHOR: Bekas, G. A.; Girkov, M. T.; Veremiy, A. N.

TITLE: Regulation range and power rating selection for a synchronous generator with frequency control

SOURCE: IVUZ. Elektromekhanika, no. 11, 1964, 1343-1349

TOPIC TAGS: gas turbine engine, electric generator, electric motor

Abstract: The electric gas-turbine drive employing a synchronous generator and an induction motor will find broad use wherever a steady drive is needed. This raises the problem of selecting the proper rating of the synchronous generator in order to ensure the operation of the induction motor within the limits of regulation of the frequency of the generator at which the rise in the temperature of the armature does not exceed the normal operating limits. Formulas for determining desirable power rating and voltage range are derived. Orig. art. figs. 24 formulas.

ASSOCIATION: none

Card 1/2

ACCESSION NR: A15008594

SUBMITTED: 25 Mar 66

ENCL: 00

NO REF SOV: 008

OTHER: 000

Card 2/2

L 54679-65 EWT(1)/EPA(s)-2

ACCESSION NR: AP5010063

UR/0143/65/000/003/0039/0047
621.313.333.017

10
9

AUTHOR: Rekus, G. G. (Candidate of technical sciences); Chirkov, M. T.
(Engineer)

12

TITLE: Effect of harmonics on the heating of an induction motor

SOURCE: Elektrotehnika, no. 3, 1965, 39-41

TOPIC TAGS: induction motor; induction motor heating; voltage

ABSTRACT: A non-sinusoidal voltage applied to an induction motor is decomposed into its Fourier series, and the effect of each harmonic on the temperature rise of the motor per pole per phase is considered. It is shown that supply voltage distortion intensifies the harmonics of the magnetic field in the machine, which, in turn, results in higher losses, braking torque, and heating for harmonics-caused additional tooth and pole flux, tooth pulsations, etc. are developed.

Continued

L 4-75-47
ACCESSION NO. 100-1-10-1

Illustrated examples of AS84-4 and AOS42-2 induction of the
sing. phase of the voltage electric locomotive. With the
voltage of the 1st harmonic of the 1st, 8% of the 5th, 8% of the 7th,
18% of the 11th, 18% of the 13th harmonic, etc. In the absence of
due to the harmonics was only 1-2C. One art has 3 figures.

ASSOCIATION: MVTH (m. Bauman) (Moscow School of Higher Technical
Learning)

SUBMITTER: 100-1-10-1 ENCL. 00 SUB. 10

NO FILED BY V OTHER: 000

Card 1/2

MOROZOV, A.N.; CHIRKOV, N.A.; FIRSOV, S.G.; KRASHCHENKO, L.S.; Prinsipal
uchastnye: RISPET, K.N.; VAYNSHTEIN, O.Ya.; BUSHUYEV, A.P.;
SNEZHKO, B.Ya.; MEL'NICHENKO, A.A.; ZHURAVLEV, V.M.

Alloying open-hearth steel with exothermic ferroalloys in the
ladle. Stal' 25 no.5:412-414 My '65. (MIRA 18:6)

Kinetics of the oxidation of hydrogen. N. Chirkov, *Acia Phisichim. U. R. S. S. O.*, 918 38(1957) (in English).—The kinetics of the oxidation of H₂ were investigated in the temp. interval 444–552° at pressures of 250–600 mm. Hg; the amt. of O₂ varied from 10 to 45%. In a stoichiometric mixt. the results are expressed by the equation $W = K(X(p - X)^2)$, where K represents a const. factor depending on temp. according to $K = K' e^{-\frac{10000}{RT}}$. p is the initial pressure, and X is the partial pressure of the gases consumed at the given moment. The autocatalytic character of the equation is due to the acceleration caused by the H₂O vapor formed. In mixts. dild. with O₂ (contg. up to 80% O) or with H₂ (up to 75%) the equation $W =$

$K[H_2O][H_2]^2$ holds satisfactorily. The const. K increases with the O content in the mixt. and is det'd. by the initial concn. of the gases. Below 5% O, the kinetics of the reaction change fundamentally. As the initial pressure is decreased, the kinetics of the reaction change, and the velocity increases with the decrease of the pressure near the upper limit, and decreases as the amt. of H_2O present increases. This indicates different mechanisms at high and low pressures. The results do not contradict those of earlier investigators when the difference in expl. methods is taken into account. W. George Parks

CA

Oxidation of hydrocarbons in the gaseous phase. Oxidation of ethylene and the negative reciprocal effect of chain reactions. *Nes. Khim. Doklady Akad. Nauk S.S.S.R.* 43, 380; 44, 38 (1941); *Chem. Zvest.* (Russian Zvest. Ed.) 1949, 1, 26; cf. *C.A.* 43, 4735. — The oxidation of ethylene was studied by the method previously described. (*C.A.* 39, 5151). With stoichiometric ratios the pressure could be followed by using the changes in pressure with time on a constant-volume manometer. Curves are given for 400° and pressures of 312, 327, 337, and 355 mm. Hg. The process can be explained in terms of Semenov's theory of the neg. reciprocal effect of chain reactions (*C.A.* 39, 3608). The reaction rate η can be calculated directly from the exptl. results for $\eta = 0.02-0.05$. For $\eta = 0-0.02$ the values of 3 constants must be introduced. These constants are obtained from a simplification of Semenov's original equation. M. G. Moore

Inat. Chem. Physics, AS USSR

1951

C.A.		PROCESS AND PROPERTIES INDEX		2	
Oxidation of gaseous hydrocarbons. 1. The catalytic action of water vapor in the oxidation of ethane. N. Chibrikov. Doklady Akad. Nauk S.S.S.R. 45, 201-4; (1944) (in Russ.). <i>ibid.</i> 45, 244-7 (1944) (in English); cf. C.A. 25, 1300; 29, 985. Gaseous mixts. of $C_2H_6 + 3.5 O_2$ were introduced into a glass reaction vessel held at 480°. Rxpts. were run at 322 mm., 190 mm., and 137 mm. initial pressure. Curves of change in pressure, measured by a membrane manometer, had an asymmetrical "S" shape. The 1st half of the reaction required a much longer time than completion of the 2nd half of the reaction. The reaction rate reached a max. at 70% conversion. No acceleration of the reaction was observed on introducing C_2H_6 into the reaction mixt. Water exerted a pos. catalytic effect. However, the initial reaction rate remained nearly zero even with addns. of relatively large amts. of water ($P_{H_2O} = 117$ mm.) to the starting gas mixt. Evidently, the max. reaction rate at 70% conversion was due to the presence of some intermediate reaction products which were not identified. I. W. Perry					
ASB. 3.1. METALLURGICAL LITERATURE CLASSIFICATION					
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NOV 19 1944					

CA

PROCESSES AND PROPERTIES INDEX

Oxidation of hydrocarbons in the gaseous phase.

11. Oxidation of ethane above 600°. N. Chirkov. *Compt. rend. acad. sci. U.R.S.S.* 46, 388 (1945); *Doklady Akad. Nauk S.S.S.R.* 46, 400-8 (1945); cf. C.A. 30, 5151¹.—The author had previously shown that water vapor catalyzes the oxidation of ethane between 400° and 500° but that the action ceases at higher temps. On investigating the dependance of the induction period of the explosion upon pressure with and without addn. of water vapor, it was found that when the temp. was less than 450° water vapor curtailed the induction period, the shortening being smaller the higher the temp. At 600° addn. of water vapor (3.6%) had no effect. At temps. equal to or greater than 600° the reaction kinetics differed from those at temps. of 450 to 500°. The kinetics were studied by following the change in pressure in the reacting mixt. by means of photographically registering a ray reflected from a membrane-manometer mirror. Representative photographs are given as well as kinetics curves. A plot of $d(\Delta p/dt)$ against q , where q is the quantity of substance that has reacted, shows that at 400° the reaction at small q is proportional to q and at 450° the rate at small q is proportional to q^2 . The equation $(dn/dt) = k(q^{b'} - 1)(1 - q)$ where k and b' are consts. describes the entire course of the curves.

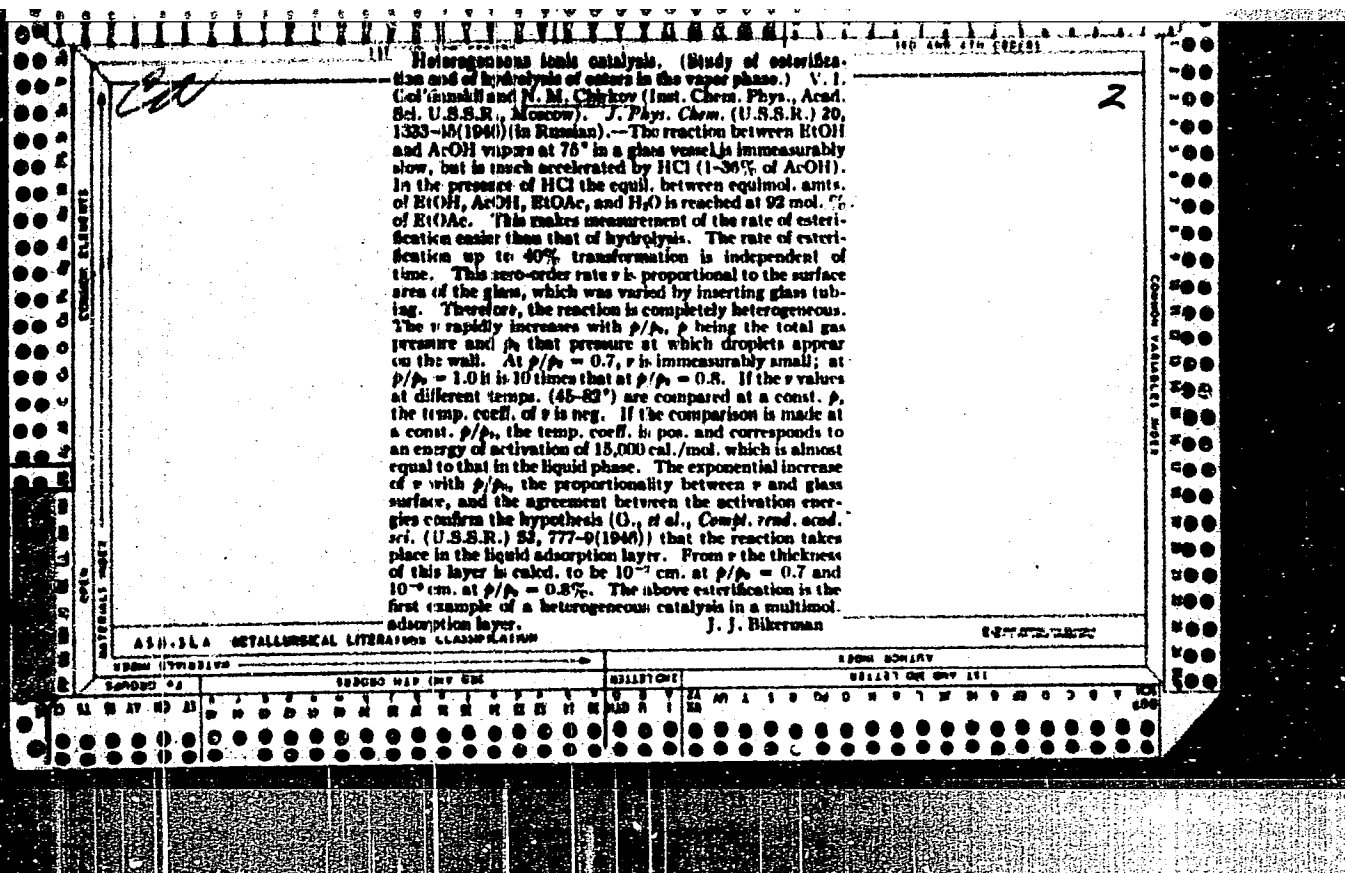
Gordon Findlay

ASSOCIATED METALLURGICAL LITERATURE CLASSIFICATION

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FROM SYNOPTIC



Electric surface conductivity of dielectrics. N. N. SEMENOV AND N. M. CHIRKOV. *Compt. rend. acad. sci. U.R.S.S.*, 51, 37-40 (1946); abstracted in *Chem. Zentr.*, 110 [1/2] 93-94 (1947).—Glass, mica, methyl methacrylate, polystyrol, and an isobutylene polymerizate were investigated in the form of an 18 x 18 mm. condenser in vacuum and under variable pressures. No material showed surface conductivity in vacuum, irrespective of whether its surface was covered with alkali or acid. Methyl methacrylate, mica, and polystyrol show no surface conductivity even in presence of water vapor. If, however, a trace of HCl or glacial acetic acid is added to the water vapor, or if the condensers are covered with oxalic acid or NaOH, a noticeable surface conductivity is found as soon as the water-vapor pressure is greater than half the saturation pressure, and the conductivity increases rapidly with the increase in water vapor pressure. Surface conductivity is therefore to be considered of electrolytic nature; it is therefore to be considered of electrolytic nature; it is therefore that only 0.5-301 mol. of the acid is dissolved in the water film while the remainder is firmly bound to the surface and does not take part in the surface conductivity. M.H.A.

PROCESSING AND PREPARATION		PROPERTIES	
CA	The surface electrical conductance of dielectrics. N. N. Semenov and N. M. Chirkov. <i>Compt. rend. acad. sci. U.R.S.S.</i> 51, 39-42 (1968). The dielectrics glass, mica, Me methacrylate, polystyrene, and isobutylene polymer, in the shape of plates, with 2 strip electrodes attached to opposite edges, were hermetically sealed in glass vessels. Provisions were made to admit water vapor into the vessel to any desired pressure, and also to deposit a film of alkali or acid on the plates. None of the five dielectrics, regardless of whether there is acid or alkali on the surface or not, shows any surface elec. conductance in vacuum. Methyl methacrylate and laminar of mica and polystyrene show no surface elec. conductance in the presence of distd. water vapor up to satn. pressure. Minute traces of HCl or AcOH evoke detectable elec. conductance at a water vapor pressure greater than 0.5 of the pressure at satn. The elec. conductance mounts rapidly with an increase in the water vapor pressure under these conditions. Pumping out of the system for two days at high vacuum does not remove the adsorbed HCl from the surface of the mica. The surface elec. conductance is not detd. by the abs. vapor pressure, but by the relative humidity. The calcd. elec. conductance is considerably larger than the exptl. value. This discrepancy is explained by assuming that an appreciable no. of the electrolyte ions, are energetically adsorbed by the surfaces under investigation and do not contribute to the elec. conductance.		2
ASME-51.4 METALLURGICAL LITERATURE CLASSIFICATION			
SEARCHED INDEXED		RELATIONS	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100	

Surface conductance of some minerals. (A. G. Kirko).
(Inst. Chem. Phys., Acad. Sci. U.S.S.R., Moscow). J.
Phys. Chem. (U.S.S.R.) 21, 1303-16(1947)(in Russian).
Heterogeneous ionic catalysis should be possible if ions are
present on the surface of the catalyst. To test the
presence of ions on solid surfaces, surface conductance σ
of dielectrics was measured. With the exception of glass
and a thin film of polymerized isobutylene on glass, no
dielectric, well washed with hot water, showed a measur-
able σ in H_2O vapor. The smallest σ measurable was
 10^{-10} ohm $^{-1}$ cm $^{-2}$. The σ on glass (no compn. given)
at 10.5" was 2×10^{-11} and 19×10^{-11} at the relative H_2O

pressure p of 0.5 and 0.9, resp. It was greater at in-
creasing p than at increasing p (hysteresis). Mica shows
 σ in the vapor of $HCl + H_2O$. After a contact with this
vapor, mica has measurable σ also in H_2O vapor alone.
This decreases after repeated rinsing with H_2O vapor to
a const. value σ_0 which varies with p according to $\sigma_0 =$
 $10^{-12.4/p}$. Freshly split and unwashed mica has a
similar σ . Mica coated with $NaCl$ (10^6 moles per sq.
cm.) has a σ exponentially increasing with p and reaching
 10^{-10} at $p = 1$. This σ is only 0.0001 that which would
be caused by freely moving Na and OH ions. At a const.
 p , σ depends but little on temp. between 18° and 30°.
When water was dried onto mica, the σ dropped. Pol-
ished quartz treated with $HCl + H_2O$ vapor and repeat-
edly rinsed with H_2O vapor has $\sigma_0 = 10^{-12.4/p}$. The
 σ of polymerized methyl methacrylate treated with $HCl +$
 H_2O vapor is greater in H_2O vapor than in $HCl + H_2O$
vapor, presumably because the adsorbed film is thicker
in pure H_2O . Cellulose nitrate showed a σ only after a
long treatment with $HCl + H_2O$ vapor. Polystyrene
and paraffin wax showed no σ whatever the treatment.
No explanation can be given for the rapid increase of σ
with p and for the small abs. values of σ . J. I. B.

U.S.S.R.

264/115

662.75 :547.4

Oxidation of Hydrocarbons in a Gaseous
Phase: Oxidation of Ethylene and the
Negative Interaction of Chains

Dokl. Akad. Nauk

57(9), 915

1947

N. Chirkev

U.S.S.R.

The rate of reaction during the oxidation of ethylene in a stoichiometric ratio with oxygen varies with the quantity of reacted substances n . The functional relationships between the rate and n may be explained by the Semenov theory of negative chain interactions. The kinetic curves can be exactly described by the theoretical Semenov curves calculated from the theory of negative chain interactions. (Bibl. 4)

(U.S.C. Transl., (TT-166), 7pp., 1950, Canada)

CHIRKOV, N.; TER-AVANSOEV, Yu.; TOLSTOV, A.

Fulfilling the decisions of the party. Stroitel' 9 no.3:14 Mr '63.
(MIRA 16:3)

1. Upravlyayushchiy trestom Ryazan'zhilstroy (for Chirkov). 2. Spetsial'-
nyye korrespondenty zhurnala "Stroitel'" (for Ter-Avanesov, Tolstov).
(Ryazan—Construction industry)

CA

2

Multimolecular adsorption on mica. V. I. Gol'danskii and N. M. Chirkov. *Doklady Akad. Nauk S. S. R.* **58**, 1065-7 (1947).—Adsorption on mica of vapors of H_2O , $EtOH$, $AcOH$, $EtOAc$, and aq. HCl was studied by the method of residual pressure. The results are given graphically. $EtOAc$ gives most pronounced adsorption, with layer thickness reaching 3×10^{-4} cm.; in descending order are: $EtOH$, H_2O , $AcOH$, and 20% aq. HCl . All curves have similar shapes in accord with Polanyi theory. G. M. Kosolapoff

CA

Heterogeneous acid-base catalysis in multimolecular films. N. M. Chirkov and M. I. Vinnik. *Doklady Akad. Nauk S.S.S.R.* 30, 1007-1008 (1947).--Transformation of AcH into paraldehyde was studied between 60° and 100°. When completely pure, paraldehyde does not decomp. into AcH at these temps. Treatment of app. walls with HCl vapor catalyzes the decompn., and the rate rises sharply with increase of temp. (results given graphically). When $P/P_{\text{decomp.}}$ is over 0.4, the reaction-rate const. rises rapidly with increased vapor pressure of paraldehyde: $K = K_0 P/P_0$. Up to P/P_0 0.3 the content of HCl goes linearly with the amt. of adsorbed HCl, but above 0.3 the linearity does not hold, and it is estd. that in the expts. up to 60 mol. layers of HCl were adsorbed on the walls, at P/P_0 of 0.75. At P/P_0 0.5-0.8 the activation energy of depolymerization is 26 kcal./mole. The catalytic activity of the wall-adsorbed HCl drops with introduction of H₂O vapor; a smaller decline occurs with EtOH vapors. Apparently in these cases HCl dissociates and does not participate in the catalysis. G. M. Kosolapoff

USSR/Chemistry - Ethane
Chemistry - Oxidation

Aug 48

Variations in the Formal Kinetics of the High- and Low-Temperature Oxidation of Ethane: I. Kinetics of the Reaction of Slow Oxidation of Ethane at Temperatures up to 400 Degrees Centigrade, N. M. Chirkov, S. G. Entelis, Inst of Chem Phys, Acad Sci USSR, Moscow, 10 pp

"Zhur Fiz Khim" Vol XXII, No 8

Graphic analysis shows a deviation from Arrhenius law and a reverse temperature course in the ethane oxidation reaction at 340-370° C, accompanied by

55/49715

USSR/Chemistry - Ethane (Contd)

Aug 48

a shift in the maximum of curves $\dot{V} = f(\Delta p)$ and changes in their forms. There is a gradual change in effective energy of activation in the reaction from $E_{eff} = 30,000-33,600$ cal/mol at 270-340° C to $E_{eff} = 55,600$ cal/mol at 400-500° C. At 274-330° C value for induction period increases with an increase in temperature and there is a simultaneous increase in the maximum speed of reaction. Oxidation of ethane at low temperatures theoretically should exhibit phenomena similar to a negative chain interaction. Submitted 27 Dec 47.

55/49715

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CHIRKOV, N. M.

CA

differences in the formal kinetics of the high-temperature and the low-temperature oxidation of ethane. The kinetics of the reaction of slow oxidation of ethane at temperatures below 600° (F. M. Chabrov and S. O. Kozlov, *Zhur. Pis. Khim. (Izv. Akad. Nauk SSSR)* 22, 830-4 (1948)). Mixts. of 2 Cells + O₂ + 1.5% IL0 were kept in a quartz vessel, washed with water, HF and water, at 1750° F, the initial pressure being 1 atm and the final pressure after the oxidation was completely in the P₂ range; the pressure P was first very close to the initial P₀ and then suddenly accelerated. At P = 205 mm. Hg. was 234, 205, 283, and 3 min. at 274, 285, 319, and 354° whereas at about 630 mm. Hg. v was not measured before 200° and passed through a max. (128 min.) at 233°. The increase of P during v cannot be accounted for by the chain reaction with chain branching. Apparently, the homogeneous gas reaction was complicated by a heterogeneous reaction which became negligible before the induction period ended. If the rate dP/dt of the reaction during

r was set equal to $N \exp. (\phi t)$, N and ϕ being const., N has a min. and ϕ had a max. at 343° . For the rapid reaction after t , the equation $d\phi/dt = (f_1 - f_2)A_1 - (f_1 - f_2)A_2$ holds, f_1 and f_2 being constants connected with branching and termination of chains, and $A = (f_1 - f_2)A_1 / (f_1 - f_2)A_2$. The max. value of $d\phi/dt$ was observed at $x = 0.38, 0.57$, and 0.61 at 274° , 344° , and 394° , A being 803 min. 11% . This max. value increased with f between 270° and 340° , the apparent energy of activation being 20,000–34,000 cal./mol., and between 400° and 480° , the activation energy being 65,000 cal./mol., but was almost independent of T or passed through a shallow min. between 340° and 400° . Presumably the low-temp. oxidation of ethane is dominated by neg. interaction of chains. The mechanisms of the low-temp. and the high-temp. oxidations are different. J. J. H.

ASD.SLA METALLURGICAL LITERATURE CLASSIFICATION

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1961 27 Oct 1961

Hydrochloric Acid Vapor

partial pressure of HCl in the vapor. Then the found rate of polymerization as a function of HCl in the multimol. adsorbed layer is P_0/P_1 . The activation energy of this layer is 15 kcal. per mole. The rate of polymerization in the liquid phase is P_0/P_2 . The activation energy of this layer is 15 ± 0.5 kcal., which matches the value found for esterification in the liquid phase above. As the reaction advanced, decrease in l of the multimol. adsorbed film was observed, caused by higher volatility of the reaction products. Depolymerization of paraffinlike (I) vapor in the presence of anhyd. or aq. HCl vapor and of glass or quartz surfaces at 60–90°C. followed similar relations. E corrected to constant l was 28 kcal. in the region of the multimol. film existence. The initial rates of isopropylmerization, which in this case refer to the unimol. film, increased with P_1 of I up to certain values of P_1 , at which the film apparently became unimol. with I. For the catalysis during the existence of the unimol. film, $E = 11$ kcal. was derived by indirect calculations. Similar relations may be important in formal catalysis by H_2PO_4 and H_2SO_4 , since the complex, kinetically stronger P_1 of H_2O vapor and thus increase the ratio P_0/P_1 .

Andrew Dracinski

Andrew Drachuck

ionic mechanism of the heterogeneous catalysis in the region of unimolecular adsorption. Depolymerization of paraldehyde in the gas phase under the action of acids. N. M. Cherkov and I. V. Vereshchinskii. *Doklady Akad. Nauk S.S.S.R.* 97, 317-30(1945).—Paraldehyde (I) is depolymerized completely, in a 1st-order reaction, in the presence of acids (HCl, HBr, H_2SO_4 , H_3PO_4) on quartz as carrier, in the temp. range 45-55° and in the pressure range 5-40 mm. Hg. With HCl and HBr, the reaction velocity v , at a const. surface area of the carrier (3200 sq. cm.), is proportional to the pressure of the catalyst in the vapor phase. Curves of v , reduced to 1 mm. Hg of anhyd. HCl, (HBr) against the relative pressure, p/p_0 , of I (p_0 = satn. pressure at the given temp.), are analogous to the adsorption isotherms of I; unimol. adsorption appears completed at about $p/p_0 = 0.2$, whereas multimol. adsorption takes place at $p/p_0 > 0.4$. In the range $p/p_0 = 0.2-0.4$, the effective activation energies E for gaseous HCl and HBr, are 9.7 and 0.5 kcal./mole, resp. With quartz treated with the nonvolatile H_3PO_4 , v is const., and the true activation energy $E = 21.0$ kcal./mole. If the catalytic effect of the acids is ascribed to H ions, i.e., if the effect is assumed to be nonspecific, the same E should be valid also for HCl and HBr, hence the heats of adsorption $q = E - E' = 11.3$ and 14.5 kcal./mole for HCl and -HBr, resp. The likelihood of these values is seen to be consistent with the assumed ionic mechanism of the catalysis. More convincing proof is provided by the effect of H_2O vapor. With a given amt. of adsorbed HBr, addition of H_2O vapor (1.5, 4, 15, 46, and 53 mm. Hg) increases v , but the effect has an optimum at 4 mm. Hg. The activity-increasing effect of H_2O is attributed to the ionization of HBr; an excess of H_2O beyond the optimum amt. is detrimental through displacement of HBr by H_2O . If v is assumed proportional to the amts., a_1 and a_2 , of I and of H_2O adsorbed, $v = Aa_1a_2 = A\omega_1\omega_2/(1 + \omega_1 + \omega_2)^2$, where ω = total no. of active points, ω = concn., $\omega = Vv'/aT$, with V = effective vol. in the adsorbed state, v' = adsorption potential, subscripts 1 and 2 referring to I and to H_2O , resp. This can be simplified to $v/As^2 = kp_1/(1 + kp_1)^2$, where $k = \omega_2/a_2p_2$. This function has a max. at $kp_1 = 1$. From exptl. data, v/As^2 is max. at $p_1 = 30$, $p_2 = 4$ mm. Hg, hence $\omega_2/a_2 = 7.5$, and $\omega_1 > \omega_2$. If the theoretical and the exptl. max. are made to coincide, and the max. v is taken = 1, the equation becomes $v/As^2 = p_1/(1 + 0.25 p_1)^2$, and is in agreement throughout with the exptl. points. N. T.

USSR/Chemistry - Physical chemistry

Card 1/1 Pub. 22 - 41/56

Authors : Churkov, N. M., and Vinnik, M. I.

Title : Kinetics and mechanism of reactions in the presence of thin films of non-volatile acids. The kinetic equation for isobutylene isomerization over H_3PO_4

Periodical : Dok. AN SSSR 99/5, 823-826, Dec 11, 1954

Abstract : The kinetic laws governing the process of isobutylene polymerization at 40 - 90° temperatures and 40 - 600 mm mercury column pressures in the presence of an acid (H_3PO_4) catalyst are explained. A kinetic equation is presented which makes it possible to describe not only the initial rates of polymerization but also the kinetic curves provided certain constants formulated for different initial isobutylene pressures are used at a given temperature and acid concentration. The independence of the rate of reaction from the pressure of the reagents in the case of a heterogeneous film catalyst was found to be the result of a maximum possible absorption of the olefine by the acid. One USSR reference (1954). Table; graphs.

Institution: Academy of Sciences USSR, Institute of Chemical Physics

Presented by: Academician V. N. Kondratyev, June 29, 1954

USSR/Kinetics - Combustion. Explosions. Topochemistry. Catalysis. B-9

Abs Jour : Referat Zhur - Khimiya, No 6, 1957, 18564

reaction does not change, if H_2 was replaced by steam, this energy does not depend practically on the mixture composition and increases together with the pressure rise. The authors suggest an approximate mechanism of the reaction of slow CO oxidation permitting to describe the data of several series of experiments.

Card 2/2

- 236 -

CHIRKOV, N. M.
USSR/Chemistry - Physical chemistry

Card 1/1 Pub. 147 - 3/22

Authors : Rustamov, Kh. R.; Kudryavtseva, T. A.; and Chirkov, N. M.

Title : Alkylation of benzene with olefines. Part 1

Periodical : Zhur. fiz. khim. 29/11, 1945-1957, Nov 1955

Abstract : A study of the kinetics of benzene alkylation with propylene showed that iso- and n-diisopropylbenzene are the basic products obtained from this alkylation reaction. The reaction kinetics was studied at four different temperatures and it was established that the effective activation energy is close to zero at a constant acid concentration. The percentage of the conversion of the basic reagents showed no effect on the ratio of the reaction products; formation of iso- and diisopropylbenzene was parallel. The effect of acid concentration and temperature on the yields of reaction products is discussed. Nine references: 5 USSR, 2 USA and 2 Eng. (1952). Tables; graphs; drawing.

Institution : Central Asiatic Polytechnic Institute

Submitted : May 4, 1955

RUSTAMOV, Kh.R.; CHIRKOV, N.M.

Alkylation of benzene with olefins. Part 2. Zhur.fiz.khim. 29
no.12:2113-2119 D '55. (MLRA 9:5)

1. Sredneaziatskiy politekhnicheskiy institut, Tashkent.
(Alkylation) (Benzene) (Olefins)

CHIRKOV, N. M.

USER/Chemistry - Physical chemistry

Card 1/1 Pub. 22 - 32/59

Authors : Chirkov, N. M., and Tsvetkova, V. I.

Title : Kinetics and reaction mechanism in the presence of thin films of nonvolatile acids. Hydration of propylene and dehydration of isopropyl alcohol over phosphoric acid

Periodical : Dok. AN SSSR 102/2, 311-314, May 11, 1955

Abstract : In order to explain the catalytic reaction mechanism of acids the authors investigated the kinetics of these processes in the presence of concentrated acids. The hydration kinetics of propylene and the dehydration kinetics of isopropyl alcohol were investigated in the presence of pellicular phosphoric acid catalysts at temperatures of $90 - 140^\circ$ at total pressures of the reagents not exceeding atmospheric pressure. The results obtained are described. Six references: 3 USSR, 2 Engl and 1 USA (1927-1954). Tables; graphs.

Institution : Acad. of Sc., USSR, Inst. of Chem. Phys.

Presented by : Academician V. N. Kondratyev, December 6, 1954

CHIRKOV, N. M.

✓12216* (Russian.) Problem of Preparing Pure Boron Fluoride. K voprosu o poluchenii chistogo fluoridogo bora. M. I. Vinnik, G. B. Manelis, R. S. Iliabova, G. D. Tantsyrev, and N. M. Chirkov, *Zhurnal Neorganicheskoi Khimii*, v. 1, no. 4, 1956, p. 628-631.

Method of preparing KBFl_3 , and preparing and purifying BF_3 . Mass spectral and infra-red analyses.

USSR/ Chemistry - Benzene alkylation

Card 1/1 Pub. 147 - 2/35

Authors : Rustamov, Kh. R., and Chirkov, N. M.

Title : Alkylation of benzene with olefines. Part 3. Alkylation of benzene with butylene

Periodical : Zhur. fiz. khim. 30/1, 20-22, Jan 1956

Abstract : The rates of benzene alkylation with n-butylenes were measured in the presence of sulfuric acid under static conditions in vacuum. The reaction of alkylation was found to follow the law of the reversible bimolecular alkylation reaction. The apparent reaction activation energy at a constant acid concentration was established to be close to zero. The linear relation existing between the logarithm of the reaction rate constant and the acidity function is analyzed. It is assumed that the acidity function actually determines the catalytic ability of acids even in heterogeneous reactions. One USSR reference (1955). Tables; graphs.

Institution : Central Asia Polytechnic Inst. Tashkent

Submitted : August 16, 1954

USSR/Physical Chemistry - Kinetics. Combustion.
Explosives. Topochemistry. Catalysis.

B-9

Abs Jour : Referat Zhur - Khimiya, No 2, 1957, 3804

Reaction kinetics follows the equation of a reversible monomolecular reaction, and the velocity constant k_1 is practically independent of the temperature. Correlation between k_1 and acidity function H_0 of the acid (k_1 in min.^{-1} per 1 g acid and 1 liter of free space of the reactor) is given by the equation $\lg k_1 = -0.632H_0 - 6.05$.

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CHIRKOV, N.M.; VOYEVODSKIY, V.V.

Nikolai Nikolaevich Semenov, founder of the theory of chain reactions; on the 60th anniversary of his birth. N.M. Chirkov, V.V. Voevodskii. Zhur.fiz.khim. 30 no.4:722 Apr. '56.

(MLRA 9:9)

(Semenov, Nikolai Nikolaevich, 1893-)

Chirkov, N. M.

USSR/Physical Chemistry - Solutions. Theory of Acids and Bases, B-11

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 489

Author: Vinnik, M. I., Kruglov, R. N., and Chirkov, N. M.

Institution: None

Title: Acidity of Aqueous Solutions of Hydrobromic and Hydrochloric Acid

Original

Periodical: Zh. fiz. khimii, 1956, Vol 30, No 4, 827-836

Abstract: The indicator method was used in measuring the acidity H_0 of aqueous solutions of HBr(I) and HCl(II) over the concentration ranges 0.275-56.52 wt percent and 8.9-40.47 wt percent, respectively. From the experimental values of H_0 , values were calculated for $(f_{H_3O} + f_B)f_{BH} +$ (III) and $f_B/(f_A - f_{BH})$ (IV). The standard state is chosen such that the acid ionization constant $\frac{f_{H_3O}}{f_A} = 1$. It is shown that the ratio III increases with increasing concentrations of I and II and the ratio IV is practically independent of the concentrations of I and II and is equal to one. For aqueous solutions of I and II up to 16-17 ml, the acidity H_0 is numerically equal to $\log(a_{HA}/c_A)$, where a_{HA} is the

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